

CHAPTER III

RESEARCH METHODS

This chapter discusses the type of the study, the procedure of the development, design of the product tryout, data collecting technique and research instruments, and data analyzing technique.

A. Type of the Study

The purpose of this research is to design a pop-up book as the material to teach writing for hearing impaired students. The type of this research is Research and Development, Gall, Borg and Gall (2003:569) state that the developmental model of the industry based which the new product and procedures are designed based on the research findings. Following that, the new products are field-tested, evaluated, and revised until the products meet the specified criteria of effectiveness, quality, or the same standards. Moreover, Wang & Hannafin (2005:6) say that design-based research is a systematic methodology that has the purpose to improve educational practices through analysis, design, development, and implementation, based on collaboration among researchers. Akker et al (2006:9) also state that design research is expected to have more connection between learning principles and educational innovation.

One of the frequent models for developing the product in R&D is the systems approach model designed by Walter Dick and Lou Carey. They (in Gall, Borg, and Gall, 2003: 570-571) propose 10 steps of a R&D cycle. The researcher compares Dick and Carey model with other models which are Jolly and Bolitho and ADDIE model. Based on the previous explanation those models have similarities and

differences. The steps of those three models are quite similar, meanwhile, the difference of the steps are in the sequence of the steps. Based on the comparison of those models, the researcher implemented ADDIE model because this model has five main steps which are Analyzing, Designing, Developing, Implementing, and Evaluating and some of those main steps have some sub steps that can be followed. Those steps assist the researcher in designing the product, because those are more detail than other steps of the two models, so that it is appropriate to be the guidance in developing the product. ADDIE which stands for Analyze, Design, Develop, Implement, and Evaluate was adapted as the model of the development. Branch (2009:2) states that ADDIE is the concept of product development and it is being applied for constructing performance-based learning. According to Branch (2009:2), ADDIE is merely a process that serves as guidance for complex situations, it is appropriate for developing educational products and other learning resources. Here is the figure of ADDIE model.

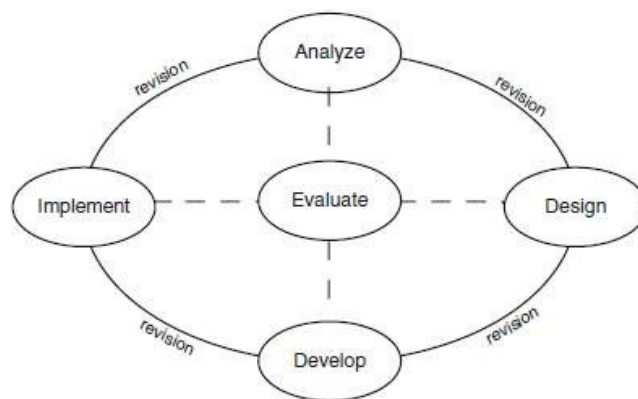


Figure 3.1 the ADDIE Concept
(Branch 2009:2)

ADDIE model that became the procedure of the development in this research has five steps, namely Analyze, Design, Develop, Implement, and Evaluate. Branch (2009:3) states that the purpose of Analyze step is to identify the probable causes for a performance gap; Design step is to verify the desired performances and appropriate testing methods; Develop step is aimed to generate and validate the learning resources; Implement step is to prepare the learning environment and engage the students; and Evaluate step is to assess the quality of the instructional products.

B. Procedure of the Development

In developing the product, the ADDIE model was implemented. Here are the explanations of the procedure.

1. Analyze Step

In the analyze step, needs analysis for students was conducted. The purpose of conducting need analysis was to find out the information about the target and learning needs of the students. The instruments for conducting need analysis were an interview, questionnaires, and observation. The interview was conducted to the teachers to find out the information such as students' performance in writing, the problems of the students and teachers in teaching writing in the class. Later on, the questionnaire was also conducted to the students to find out the performance of the students to get the information about their lack, needs and wants, input, students' role, and teacher's role.

Furthermore, observation notes were used to discover general characteristics, number of students, student attitudes towards English subject, students' activities,

and teaching method. Moreover, the available resources in the school were also observed such as the content resources: materials, textbooks, media; technology resources such as language laboratory, computer, and projector; and the English teachers, whether there are English teachers or not in the school. Besides, the 2013 curriculum of hearing impaired students were also analyzed by selecting the materials that students must learn to design and develop the materials and media for students based on the need analysis data.

2. Design Step

After conducting need analysis, the next step was to design the materials and media. In this step, the draft of the content, the illustrations/pictures for a pop up book and materials, a course grid were designed. Moreover, the course grid was designed based on core and basic competences of the 2013 curriculum and the activities on the course grid were based on the activities of the Genre-based Approach.

3. Develop Step

After designing the content draft, course grid and illustration for the media and materials, the researcher developed the book, instruments for evaluation and conducted formative revisions. In developing students' book, the materials were based on the information from needs analysis and the framework of the course grid.

Furthermore, in conducting formative revision, the products were analyzed whether those were appropriate or not by asking the experts or expert judgment. Moreover, the expert also validated the content of the materials whether those are

valid or not. The purpose of conducting formative revision was to revise the products before those were implemented to the students. After those had been already valid and reliable, the products were implemented to the students.

4. Implement Step

The fourth phase of the ADDIE concept is implementing step. In this phase, the products were implemented to the eight grade hearing-impaired students. The design of this step was conducted by the field-testing. In the field-testing, the product was implemented to eight grade hearing impaired students in two different schools. There was a collaborator in implementing the materials for the students. Later on, the teacher gave comments or suggestions for the content or the layout of the products and the students were required to fill the questionnaire of evaluation to find out whether the materials were suitable or not for their needs.

5. Evaluate step

After the products were implemented to the subjects, the questionnaire was distributed to the teacher and the students to evaluate the products, the questionnaire was about the contents and the layout of the products whether the products were appropriate or not for the students. The evaluation form of expert' judgment also was used to prove whether the product was appropriate or not for students' needs. The researcher also calculated the mean result of the exercises in the exercise book whether there was an improvement or not of the performance of the students.

C. Design of the Product Tryout

1. Tryout Design

a. Pre Field-Testing

The product of the development was the pop-up book as the material to teach writing for eighth grade hearing-impaired students. Before the product was implemented to the subject, the product was checked by experts whether the product had been appropriate or not. The expert was an English lecturer who has expertise in materials development. The expert gave comments, corrections or revision through the product.

b. The Field-Testing

After pre-field testing, the product was implemented to the subjects that were eighth grade hearing impaired students in two schools. After implementing the products to subjects, the teacher gave comments or suggestions for the content or the layout of the products. Moreover, the questionnaire of evaluation was distributed to the students to find out whether the materials were appropriate or not for their needs.

2. Subject of the Research

The subjects of this research were the eighth grade hearing impaired students, the teachers, and the materials' expert. There were two SLB in the research sites. The total numbers of the students in needs analysis step were 12 students in three schools in the academic year of 2019/2020, and there were 10 students from two schools in implement step and evaluate step.

3. Setting of the Research

The research was conducted in three SLB in Subang, West Java. The first school is SLB Tarbiyatul Muta'alimin. The school is located in Jl. Raya Kamarung no. 56 Pagaden, Subang. The second school is SLB Negeri Subang that is located in Jl. Trubus blok suka asih, Subang. And the third school is SLB Karya Winaya Pamanukan that is located in Pamanukan, Subang.

D. Data Collecting Technique and Research Instruments

In this research, the data are in the form of qualitative and quantitative data. The qualitative data were gathered from an interview, observation, and the result of expert judgments. The interview was conducted to the teacher to find out students' needs, motivation and their performance in English subject; afterward, the resources in the school such as content resources, technology resources, human resources were observed; and the result of expert judgments were gathered from the responses of the experts in the evaluation form that was in the form of category rates. On the other hand, the quantitative data were gathered from the result of the students' scores and the questionnaires that were distributed to the students in analysis step and the teacher in evaluating step.

The instruments of this research were interview guidelines, questionnaires, and observation sheets, evaluation forms by experts and the teacher, and worksheets of the achievement test of the students. An interview, questionnaire, and observation were conducted in analyzing step. Furthermore, another

questionnaire, evaluation forms by experts and the teacher were used to collect data in evaluating step.

1. Validity of the Instruments

Before, distributing the instruments to the research subjects, the instruments were validated to the expert. The validity was conducted to measure whether the instruments can measure what pretends to be measured (Cohen et al. 2007:133). The content validity was conducted to validate the content of the instruments. The expert gave some comments and suggestions related to the content of the instruments.

2. Research Instruments

a. Interview Guideline

Interview guideline was the lists of the questions that were used as a guideline to disclose the information about the students. The interview was addressed to the teacher of eighth grade hearing impaired students in the school. The blueprints for the interview guideline are as follows.

Table 3.1 The Blueprint for Interview Guideline for Needs Analysis

Aspects	The Purpose of the Questions	References
Necessities	To find out what the students' need in the target situation.	Hutchinson and Waters (1987: 55)
Lacks	To discover the performance gap of the	Hutchinson and Waters (1987: 55-56)

	students in the target situation.	
Wants	To disclose the layout of media that the students want.	Hutchinson and Waters (1987: 56)
Input	To explore the spoken, written, and visual sources for students.	Nunan (2004: 47)
Procedures	To identify what learners will do with the input.	Nunan (2004: 52)

b. Questionnaires

In this research, there were three types of questionnaires. The first questionnaire was used in the analyze step to conduct needs analysis. The organizations for the questionnaire for conducting needs analysis are explained below.

Table 3.2 The Blueprint for Questionnaire for Needs Analysis

Aspects	The Purpose of the Questions	References
Necessities	To find out what the students' need in the target situation.	Hutchinson and Waters (1987: 55)
Lacks	To discover the performance gap of the students in the target situation.	Hutchinson and Waters (1987: 55-56)
Wants	To disclose the layout of media that the students	Hutchinson and Waters (1987: 56)

	want.	
Input	To explore the spoken, written, and visual sources for students.	Nunan (2004: 47)
Students' role	To discover what learners are expected to play in the tasks.	Nunan (2004: 64)
Teacher's role	To find out what the teacher is expected to play in the tasks.	Nunan (2004: 64)

The organizations of the questionnaire above were the questionnaire for the students and it covered the target and learning needs of the students. The students were required to give a tick on the table based on their needs. In some items, the students can choose more than one option based on their needs.

The second questionnaire was distributed to the expert in the evaluate step to find out whether the materials are appropriate or not for the students. It covered goals, the content of the materials, the appropriateness of the language and the organization of the materials. The expert was required to give a tick on the table. The blueprint of the questionnaire is as follows.

Table 3.2 The Blueprint of Questionnaire for Materials Evaluation

Aspects	The purpose of the statements	References	Items
Goals	To find out whether the textbook assist to accomplish the goals of the course	Brown (2001:142) and Cunningsworth (1995:3-4)	1-4
The content of	To discover the	BSNP (2011) and	5-10

materials	appropriate materials for the students.	Cunningsworth (1995:3-4)	
The appropriateness of the language	To disclose the appropriate language for the materials.	BSNP (2011) and Cunningsworth (1995:3-4)	11-14
The organization of the material	To explore the organization of the material.	BSNP (2011)	15-17

The third questionnaire was distributed to the students to evaluate the materials whether it was appropriate or not for their needs. It covered goals, the content of the materials, the appropriateness of the language, the organization of the materials, lacks and wants. The students were required to give a tick on the table. The blueprint of the questionnaire is as follows.

Table 3.3 The Blueprint of Questionnaire for Materials Evaluation

Aspects	The purpose of the statements	References	Items
Goals	To find out whether the textbook assist to accomplish the goals of the course	Brown (2001:142) and Cunningsworth (1995:3-4)	1-2
The content of materials	To discover the appropriate materials for the students.	BSNP (2011) and Cunningsworth (1995:3-4)	3-7
The appropriateness of the language	To disclose the appropriate language for the materials.	BSNP (2011) and Cunningsworth (1995:3-4)	8-10
The organization of the material	To explore the organization of the material.	BSNP (2011)	11-12
Lacks	To discover whether the	Hutchinson and	13-14

	materials meet the performance gap of the students in the target situation.	Waters (1987: 55-56)	
Wants	To disclose whether the materials meet the layout of the students' want.	Hutchinson and Waters (1987: 56)	15-16

c. Observation Sheets

The observation sheet was applied as a guideline to write the field notes during the observation to disclose the general characteristics, number of students, students' activities and students' attitudes in the teaching and learning process. Moreover, the required resources such as materials, textbooks, media in the school were also be audited whether the resources were available or not in the school. The result of the observations were in the form of field notes. The observations were held in one meeting in the three schools.

E. Data Analysis Technique

There were two types of data that were analyzed namely qualitative and quantitative data. The data analysis techniques for those two types of data are explained below.

1. Quantitative Data

Cohen et al. (2007:501) quantitative data analysis refers to the process of analyzing the numerical data. In this research, the quantitative data were obtained from the first questionnaire and the second questionnaire. As mentioned before, the first questionnaire was the questionnaire in conducting need analysis and the

second and third questionnaires were the questionnaires for evaluating the product. The data from the questionnaires were analyzed by calculating the total respondents of the answers in the questionnaire. Moreover, those data were presented in the form of tabulating data. After that, the results were converted into descriptive analysis. The researcher used a data conversion table from Suharto (2006: 52-53).

Table 3.4 Data Conversion Table

Scales	Interval	Descriptive Categories
1	$1 \leq x \leq 1.74$	Poor
2	$1.75 \leq x \leq 2.24$	Fair
3	$2.5 \leq x \leq 3.34$	Good
4	$3.24 \leq x \leq 4$	Very Good

2. Qualitative Data

According to Cohen et al. (2007:461) qualitative data analysis refers to the interpretation in making sense of data in terms of the definition of a situation based on the participants, noting patterns, themes, categories and regularities involving the process of organizing, accounting for, and explaining the data. The qualitative data were obtained from the interview and observations.

The data were analyzed using qualitative data analysis proposed by Miles and Huberman, and Saldana (2014:31) namely data condensation, data display, and data conclusion. The first is data condensation that refers to the process of selecting or simplifying data. The result of the observation and the interview were summarized into a small number of categories to make the data simpler; the second is data display that refers to an organized, compressed assembly of information that permits conclusion drawing and action. The data were organized

in the form of tabulating data; the third is data conclusion that refers to concluding the data. After simplifying and displaying the data, the researcher concluded the data.